293rd BSB DPW

U.S. ARMY O & M Division , MANNHEIM, GERMANY

INTEGRATED PEST MANAGEMENT PLAN

March 14, 2003

293rd BSB DPW

U.S. ARMY O & M Division , MANNHEIM, GERMANY

INTEGRATED PEST MANAGEMENT PLAN

RECORD OF REVISIONS

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APPROVALS

This Integrated Pest Management Plan (IPMP) addresses pest and pesticide management requirements specific to 293rd BSB DPW U.S. ARMY O & M Division , MANNHEIM, GERMANY **operations.**

This IPMP satisfies the requirement to develop and maintain an IPMP contained in Chapter 11 of the Final Governing Standards for Germany. This plan must be updated as information/data contained herein changes.

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TABLE OF CONTENTS

LIST OF ACRONYMS AND ABBREVIATIONS

AFPMB	Armed Forces Pest Management Board
AR	Army Regulation
AVP	Aerial Validation Plan
B&G	Buildings and Grounds (part of DPW)
BSB	Base Support Battalion
CDC	Child Development Center
CENAU	Corps of Engineers, Europe District
CFR	Code of Federal Regulations
CHPPM-EUR	Center for Health Promotion and Preventive Medicine, Europe
COR	Contracting Officer's Representative
DA	Department of the Army
DCA	Directorate of Community Activities
DoD	Department of Defense
DPW	Directorate of Public Works/Director of Public Works
DRMO	Defense Reutilization Marketing Office
ECAS	Environmental Compliance Assessment System
EMO	Environmental Management Office
EPA	Environmental Protection Agency
FE	Facility Engineer
FGS	Final Governing Standards
FY	fiscal year
GMP	good management practice
HM	hazardous material(s)
HN	host nation
HW	hazardous waste(s)
HWMP	hazardous waste management plan
IC	Installation Commander
IMA-E	Installation Management Agency, Europe Region
IPM	Integrated Pest Management
IPMP	Integrated Pest Management Plan
MACOM	Major Command
MSDS	material safety data sheet
MWR	Morale, Welfare, Recreation
NSN	National Stock Number
O&M	operations and maintenance
OCONUS	outside continental United States
PAO	Public Affairs Office
PMC	Pest Management Coordinator
PMP	Pest Management Plan
PMU	Preventive Medicine Unit
POC	point of contact
POL	petroleum, oils, and lubricants

PPE	personal protective equipment
QA/QC	quality assurance/quality control
RBC	red blood cell
SPCCP	Spill Prevention, Control, and Countermeasures Plan
SO	Safety Office
SOP	standard operating procedure
TB	Technical Bulletin
TB MED	Technical Bulletin - Medical
TIM	Technical Information Memorandum
TM	technical manual
UR	IMA-E regulation
IMA-E	United States Army, Europe
USEPA	United States Environmental Protection Agency
UST	underground storage tank

DEFINITIONS

In addition to the definitions contained in Appendix P (Chapter 11, Pesticides, of the FGS for Germany), the following definitions apply:

Adequate Storage*:* placing of pesticides in proper containers and in safe areas to minimize the possibility of escape, which could result in unreasonable adverse effects on the environment.

Caution*:* the human hazard signal word required on the front panel of a pesticide container determined by the toxicity category of the pesticide. All pesticide products meeting the criteria of Toxicity Category III or IV must bear the signal word "caution" on the front panel.

Commercial Applicator*:* a certified pesticide applicator, other than a private applicator, who uses or supervises the use of any pesticide, for any purpose, on any property, or performs other pest control-related activities.

Danger*:* the human hazard signal word required on the front panel of a pesticide container determined by the toxicity category of the pesticide. All pesticide products meeting the criteria of Toxicity Category I must bear the signal word "Danger" on the front panel.

Decontamination/detoxification*:* processes that convert pesticides into nontoxic compounds.

Degradation Products*:* those chemicals resulting from partial decomposition or chemical breakdown of pesticides.

Diluent: the material added to a pesticide by the user or manufacturer to reduce the concentration of the active ingredient in the mixture.

Encapsulate*:* to seal a pesticide, and its container if appropriate, in an impervious container made of plastic, glass, or other suitable material that will not be chemically degraded by the contents. This container should then be sealed within a durable container made from steel, plastic, concrete, or other suitable materials of sufficient thickness and strength to resist physical damage during and subsequent to burial or storage.

Excess Pesticides*:* all pesticides that cannot be legally sold or that are to be discarded.

Fumigant*:* any pesticide that by itself or in combination with any other substance emits or liberates a gas, gases, fumes, or vapors, and which gas, gases, fumes, or vapors when liberated and used will destroy, control, or mitigate a pest, and is usually lethal, poisonous, noxious, or dangerous to human life.

Heavy Metals*:* metallic elements of higher atomic weights, including but not limited to arsenic, cadmium, copper, lead, mercury, manganese, zinc, chromium, tin, thallium, and selenium.

Herbicide*:* an agent used to destroy or inhibit plant growth.

Inorganic Pesticides*:* noncarbon-containing substances used as pesticides.

Metallo-organic Pesticides*:* a class of organic pesticides containing one or more metal or metalloid atoms in the structure.

Organic Pesticides*:* carbon-containing substances used as pesticides, excluding metallo-organic compounds.

Pest Management Personnel*:* personnel involved with activities that monitor or mitigate pest problems, including personnel that manage a pest management program, carry out pest control work (which includes selecting, mixing, or applying pesticides), monitor pest populations, and coordinate various activities that prevent or mitigate pest problems. This includes active duty, civilian (U.S. and Local Nationals), and contract workers directly involved with the program; it does not include persons whose contact with pesticides is limited to transporting, loading, and unloading closed containers.

Pesticide Handling: operations involving contact or potential contact with pesticides, including loading, unloading, transferring, mixing, and applying pesticides, filling or cleaning pest management equipment, preparing pesticide waste for disposal, and participating in pesticide spill response.

Pesticide Incinerator*:* any installation capable of the controlled combustion of pesticides, at a temperature of 1000° C (1832° F) for two seconds dwell time in the combustion zone, or lower temperatures and related dwell times that will assure complete conversion of the specific pesticide to inorganic gases and solid ash residues.

Pesticide Security: the prevention of intrusion to areas used to store pesticides and other toxic chemicals **to** ensure that they have appropriate security protections to prevent intruder access to equipment used in mixing, loading, and applying pesticides. Pesticide applicators must have proper authorization and identification.

Restricted-use Pesticide*:* also known as restricted pesticide, a pesticide that has been determined to merit additional restrictions by either the U.S. or host nation because it would cause unreasonable adverse effects on health or the environment.

Safe Disposal*:* discarding pesticides or containers in a permanent manner so as to comply with proposed procedures and so as to avoid unreasonable adverse effects on the environment.

Sanitary Landfill*:* a disposal facility employing an engineered method of disposing of solid wastes on land in a manner that minimizes environmental hazards by spreading the solid wastes in thin layers, compacting the solid wastes to the smallest practical volume, and applying cover material at the end of each working day.

Soil Injection*:* the emplacement of pesticides by ordinary tillage practices within the plow layer of a soil.

Triple Rinse*:* the flushing of containers three times, each time using a volume of the normal diluent equal to approximately 10 percent of the capacity of the containers, and adding the rinse liquid to the spray mixture or disposing of it by a method prescribed for disposing of the pesticide.

EXECUTIVE SUMMARY

OPERATION AND MAINTENANCE Division is responsible for planning and conducting Pest Control Surveys when necessary or requested.

The contents of this plan applies to all activities and individuals working, residing or otherwise doing business for this Pest Control Shop, and will be implemented to the maximum extent possible. At no time will pest management operations be done in a manner which will cause harm to personnel or the environment. Pest management responsibility will begin with those individuals which occupy or maintain buildings or open space on the installation. Non-chemical control efforts will be used to the maximum extent possible before pesticides are used. This plan will be a working document and will be continually updated to reflect actual pest management practices.

The pest management plan for OPERATION AND MAINTENANCE Division describes the installation's pest management requirements, outlines the resources necessary for surveillance and control, and describes the administrative, safety and environmental requirements of the program. The program uses certified technicians to control pests. Pests included in the plan are crawling insects (ants, crickets, cockroaches, etc.) and spiders, Rodents and other vertebrate pests. Without control, these pests could interfere with the military mission, damage real property, increase maintenance costs and expose installation personnel to diseases. Actual pest management procedures are found in the Integrated Pest Management Outlines included as Appendix C.

Pesticide Security**: t**he prevention of intrusion to areas used to store pesticides and other toxic chemicals **to** ensure that they have appropriate security protections to prevent intruder access to equipment used in mixing, loading, and applying pesticides. Pesticide applicators must have proper authorization and identification.

1.0 INTRODUCTION AND BACKGROUND

This Integrated Pesticide Management Plan (IPMP) is developed for the O & M Division, Mannheim

1.1 PURPOSE

This IPMP has been developed to define the activity's pest management requirements, aiding in the understanding of and compliance with all applicable host nation laws, Final Governing Standards (FGS) for Germany, Department of the Army (DA), IMA-E, and DoD requirements. It is intended as a comprehensive document, describing pest problems and the processes required to implement an effective pest management program at the installation. This plan outlines considerations and approaches to pest management, emphasizing non-chemical means of pest control prior to the use and application of pesticides. This fusion of multiple strategies, both chemical and non-chemical, is referred to as Integrated Pest Management (IPM), and serves as the heart of the Pest Management Plan. Ultimately, the goal of this plan is to reduce the installation's reliance on pesticides, to enhance environmental protection, and to maximize the use of integrated pest management techniques. Adherence to this plan will ensure effective pest management at minimal cost and environmental impact, as well as compliance with all applicable laws and regulations.

1.2 REGULATORY APPLICABILITY

All IMA-E installations must adhere to regulations regarding pesticide management and use from numerous sources. Appendix O contains a list of documents that are the major sources of pest and pesticide management regulations.

Areas of compliance include application procedures, health and safety requirements, storage and mixing facility requirements, training and certification, restricted-use and banned pesticides, and general installation requirements.

1.3 PROGRAM OBJECTIVE

This plan provides guidance for operating and maintaining an effective pest management program. Principles of IPM are stressed in this plan. IPM consists of the judicious use of both non-chemical and chemical control techniques to achieve effective pest management with minimal environmental contamination.

Adherence to this plan will ensure effective, economical, and environmentally acceptable pest management and will maintain compliance with pertinent laws and regulations.

2.0 RESPONSIBILITIES

The following sections outline pest management responsibilities throughout the installation. Appendix A includes a comprehensive list of all personnel involved in pest management activities at the installation.

2.1 INSTALLATION COMMANDER

The Installation Commander shall:

- Comply with applicable pest management regulations;
- Ensure that adequate funds and staffing are provided to support installation pest management program requirements;
- Approve IPMPs and ensure they are addressed by the installation master planning process;
- Ensure the pest management requirements of major assigned units, tenants, and supported activities meet Army program requirements;
- Ensure that personnel who perform installation pest management operations meet DOD standards for training and certification;
- Implement appropriate pest management record keeping requirements;
- Ensure that installation Safety and Occupational Health programs encompass the pest management facilities and operations;
- Ensure that pest management material is included in the self-help program inventory; and
- Designate a qualified Installation Pest Management Coordinator.
- Initiate requests for aerial application of pesticides when necessary.

Contact information for the Installation Commander is as follows:

Installation Commander:	LTC, MI Melissa A. Surgeon
Mailing Address:	293rd BSB, Unit 29901, APO AE 09086
Office Location:	Sullivan Bks., Bldg. 245
Office Phone Number:	380 - 1500
Home Phone Number:	
FAX Number:	
Email Address:	melissa.sturgeon@cmtymail.26asg.army.mil

2.2 DIRECTORATE OF PUBLIC WORKS (DPW)

The DPW shall:

- Determine specific pest management requirements for the installation;
- Request and monitor contracted pest management operations;
- Obtain and maintain adequate supplies of pesticides and pesticide dispersal equipment and ensure that equipment is properly maintained;
- Assist in the maintenance of adequate records of pest management operations;

- Ensure that installation personnel performing pest control receive adequate training and maintain pest management certification as required; and
- Ensure that all pest management operations are conducted safely, with minimal impact on the environment.

Contact information for the DPW is as follows:

DPW:	Marx, Kurt N.
Mailing Address:	293rd BSB DPW, O & M Division
Office Location:	Taylor Bks., Bldg. 346
Office Phone Number:	381 - 8927
Home Phone Number:	
FAX Number:	381 - 7477
Email Address:	Kurt.Marx@cmtymail.26asg.army.mil

DPW:	Köhler, Volkmar
Mailing Address:	293rd BSB DPW, O & M Division
Office Location:	Taylor Bks., Bldg. 400
Office Phone Number:	381 - 7325
Home Phone Number:	
FAX Number:	
Email Address:	Koehler.Volkmar@cmtymail.26asg.army.mil

2.3 INSTALLATION PEST MANAGEMENT COORDINATOR (IPMC)

The primary responsibility of the IPMC is to prepare and staff the IPMP and submit this plan and annual updates to the IMA-E Command Consultant for review. Additional duties include:

- Notifying the IMA-E Command Consultant of program reviews by non-DOD government agencies;
- Maintaining records on the status of pest management quality assurance evaluators and pesticide applicators;
- Ensuring the completeness and accuracy of installation pest management records;
- Summarizing and reporting pest management information to the Command Consultant;
- Maintaining records of hazardous pesticide disposal actions;
- Preparing and coordinating the aerial validation plan (AVP) for emergency aerial pesticide applications, and notifying the Command Consultant of planned regional aerial applications by non-DOD Government agencies if these involve the installation;
- Identifying and addressing findings of adverse safety and occupational health reports on the installation pest management operation;
- Notifying the Command Consultant if pest management operations undergo a corrective action review;

- Coordinate with activities conducting pest surveillance or controlling pests to ensure all applicable information is recorded and reported as required by this plan. Monitor the sale and distribution of pesticides on the installation.
- Oversee the technical aspects of the self-help program with respect to pest control items and training of family housing residents.
- Monitor certification and continuing pest management training for pesticide applicators on the installation.

Contact information for the Installation Pest Management Coordinator is as follows:

Pest Management Coordinator:	Fluhrer, Harald
Mailing Address:	293rd BSB DPW, O & M Division
Office Location:	Taylor Bks. Bldg 359
Office Phone Number:	381 – 7456/7088
Home Phone Number:	06202 - 53072
FAX Number:	
Email Address:	Harald.Fluhrer@cmtymail.26asg.army.mil

2.4 PEST MANAGEMENT PERSONNEL

All personnel involved with pesticide management activities shall:

- Use integrated pest management techniques to the maximum extent possible;
- Control pests according to the provisions of this plan;
- Operate in a manner that minimizes risk of contamination to the environment and personnel;
- Ensure that superiors are kept informed of changes in pest management requirements;
- Request pest management supplies and equipment in a timely manner; and
- Maintain effective liaison with installation health and environmental officials.

Contact information for installation pest management personnel is as follows:

Installation Pest Management Personnel

Name	Title	Telephone
Fluhrer, Harald	Supervisor Pest Control	381 – 7456/7088
Schaefer, Gerd	Foreman Pest Control	381 – 7456/7088
Helfrich, Reinhard	Pest Controller	381 – 7456/7088
Pfliegensdoerfer, Thomas	Pest Controller	381 – 7456/7088
Blanke, Michael	Pest Controller	381 – 7456/7088
Kraemer, Joerg	Pest Controller	381 – 7456/7088

2.5 BUILDING OCCUPANTS

Building occupants shall:

- Apply good sanitary practices to prevent pest infestations;
- Use all non-chemical and chemical pest control techniques available through the Self-Help program to the fullest extent before requesting further assistance from the DPW;
- Apply only those pesticides approved for use by the DPW; and
- Cooperate fully with DPW personnel and contractors in scheduling pest management operations, including preparation of the areas to be treated.

3.0 GENERAL INSTALLATION INFORMATION

3.1 INSTALLATION DESCRIPTION

The following sections provide copies of installation maps in Appendix B.

The 293rd BSB Mannheim consists of 17 locations including: Benjamin Franklin Village, Coleman Barracks, Dannenfels Communication Station, Edigheim Beacon Site, Friedrichsfeld QM Services, Friedrichsfeld Store Area, Funari Barracks, Grünstadt AAFES Fac, Grünstadt Communication Station, Lampertheim Training Area, Mannheim Class III Point, Spinelli Barracks, Sullivan Barracks, Taylor Barracks, Turley Barracks and Worms Auto Strip Yard. The location of these 17 sites is shown in Figure 2.1.1. Several of these locations are sub-divided into separate parcels of land according to ownership and the date the property was acquired. Each parcel of land usually has a unique obligation document number. It should be noted that the separate parcels of land associated with each location are not necessarily contiguous. Key points obtained from the Real Property records are provided in Tables 3.1.1 and 3.1.2**.**

The Federal Republic of Germany (FRG) allows the U.S. Army to use federal land as a military installation under the administration of the 293rd BSB Mannheim to fulfill their defense responsibilities within the North Atlantic Treaty Organization (NATO). The Supplementary Agreement (SA) to the NATO Status of Forces Agreement (SOFA) delineates the scope of U.S. authority within the installation boundaries. In brief, this authority entitles the U.S. forces to take the measures necessary to satisfactorily meet their defense responsibilities. The United States Army Europe (USAREUR) has an obligation to act responsibly and effectively in the management and use of natural resources and lands under its administrative control.

TABLE 3.1.1

CANTONMENT AREAS

Locations	ARLOC	Obligation Document No.	Comments	Ownership
Benjamin Franklin Village	GE07P	CAC-F-5226, 5227, 5228, 5229	DODDS, AAFES, Family Housing	FRG
		CAC-F-5233, 5224, 5235, 5237-5243		FRG
		CAC-F-5248 – 5253, 5255 – 5259, 5262 – 5268, 5270 - 5277		FRG
		CAC-F-5303, 5312, 5313, 5331, 5332, 5406, 5406		FRG
Coleman Bks.	GE140	ACA-K-4244	Confinement Fac., 2/502nd Aviation, Kasernes	FRG
		CAC-F-5382, 5383		FRG
		EC-F-1983		City of Mannheim
		6GRE 41962		FFRG
		6GRE 100742		City of Mannheim
Dannenfels Comm. Sta.	GE15F	ACA-K-4275	Communication Station 5th Signal	FRG
		6GRE 82871		Rheinland Pfalz
Edigheim Beacon Site	GE 190	ACA-K-4245	Switching Station	FRG
Friedrichsfeld QM Services	GE27S	ACA-F-5034	Industrial Service Center, Furniture	FRG
		EC-F-1445		City of Mannheim
		EC-F-2256		City of Mannheim
Friedrichsfeld Store Area	GE27T	CAC-F-5033	Distribution Point	FRG
Funari Bks.	GE28T	CAC-F-5308	5th Signal Command, Scouts, Teen Center, Caserne	FRG
Grünstadt AAFES	GE32H	ACA-K-4081, 4083, 4225,	AAFES Bakery, Chlorination Station, Depots	FRG
		6GRE 105178		FRG
Grünstadt Comm. Sta.	GE32F	6GRE 80985	Pumphouse	FRG
Mannheim Class III Point	GE52F	CAC-F-5392	5th Signal, Col.Conf.Stor.Fac.	City of Mannheim
		REA-K-4731		FRG

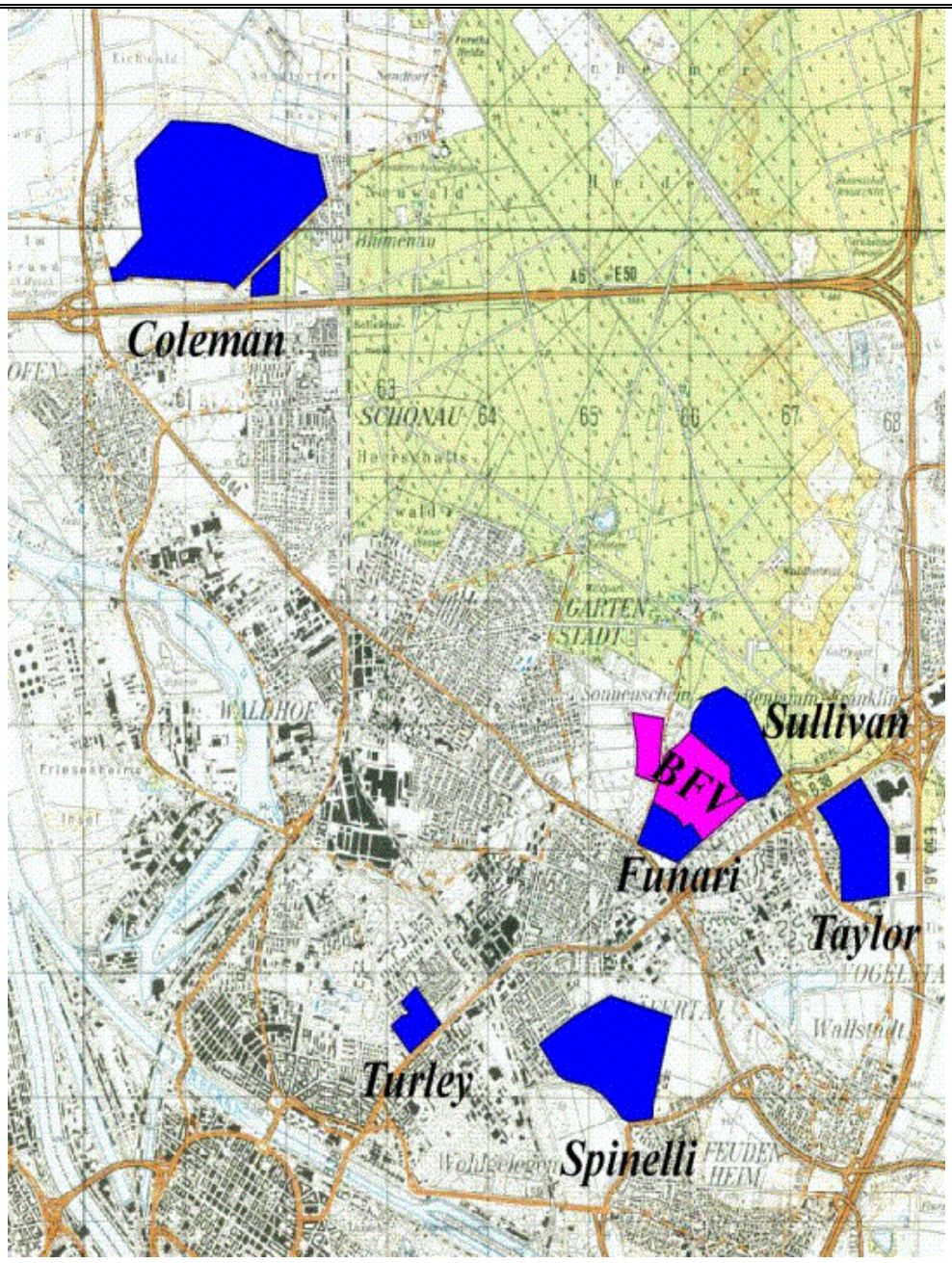
Locations	ARLOC	Obligation Document No.	Comments	Ownership
		6GRE 71929		FRG
Spinelli Bks.	GE79R	ACA-K-4254	Transportation, Storage	FRG
		CAC-F-5376		FRG
		EC-F-1968		Deutsche Bahn AG
		6GRE 71881		FRG
		NAC-1064		City of Mannheim
		NAC 608, 609, 623, 624, 643,		Private Owner
		NAC 825		City of Mannheim
		NAC 954, 956, 957, 958, 962, 982		Private Owner
		NAC 985		FRG
		NAC-1024		Private Owner
Sullivan Bks.	GE82J	CAC-F-5309	BSB HQ, MTOE, USO, Housing	FRG
		6GRE 76109		FRG
		6GRE 41888		FRG
Taylor Bks	GE83C	CAC-F-5378	DPW, Provost Marshal, MAM	FRG
Turley Bks.	GE856	CAC-F-5378, 5311	Claims, University of Maryland	FRG
Worms Auto Strip Yard	GE822	ACA-K-4102	Strip Yard, Craft Shop	FRG

TABLE 3.1.2

TRAINING AREA

Locations	ARLOC	Obligation Document No.	Comments	Ownership
Lampertheim Training Area	GE478	6GRE 27544	Training ranges, open areas	State of Hesse
		6GRE 49203		

LOCATION OF MAJOR INSTALLATIONS WITHIN THE CITY LIMITS OF MANNHEIM



For an overview map showing all installations of the 293rd BSB Mannheim see appendix B 1

3.2 ACREAGE AND ACQUISITION

The present total acreage of the installation is 5,574 acres or 2270,5 hectares based on data provided by USAREUR and Real Property. Installation lands are divided into the cantonment areas, which include 1,487 acres or 605,5 hectares and the training area, which consists of 4,087 acres or 1,665 hectares. Tables 3.2.1 and 3.2.2 provide a summation of the sizes of the land included within the 293rd BSB Mannheim**.**

TABLE 3.2.1

SIZE OF THE CANTONMENT AREAS

Locations	**Acres**	**Hectares**
Benjamin Franklin Village	231	94
Coleman Bks.	580	236
Dannenfels Comm. Sta.	4	1.6
Edigheim Beacon Site	1	0.4
Friedrichsfeld QM Services	39	16
Friedrichsfeld Store Area	16	6.5
Funari Bks.	31	12.5
Grünstadt AAFES	20	8
Grünstadt Comm. Sta.	64	26
Mannheim Class III Point	44	18
Spinelli Bks.	200	81.5
Sullivan Bks.	108	44
Taylor Bks	114	46.5
Turley Bks.	33	13.5
Worms Auto Strip Yard	2	0.8
Total Cantonment Areas	1,487	605,5

TABLE 3.2.2

SIZE OF THE TRAINING AREAS

Locations	**Acres**	**Hectares**
Lampertheim Training Area	4,087	1,665
Total Training Areas	***4,087***	***1,665***

3.3 INSTALLATION HISTORY

The Mannheim Military Community has its roots with the American occupational forces immediately after World War II. The 1st support Brigade was activated in June 1965 at Taylor Barracks, Mannheim. When the 7th Army Support Command was dissolved in 1970, the Brigade became a major subordinate headquarters under the Theater Army Support Command, Europe (TASCOM). When TASCOM merged with U.S. Army Europe headquarters in 1974, the U.S. Military Community Activity-Mannheim evolved. Until 1991, USMCA-Mannheim was the single point of control for all American soldiers, civilians, and family members, providing base operations support for tenant units in its assigned area.

In 1990, Mannheim Military Community's area of responsibility was considerably extended by the consolidation of the Worms Community Activity, including the sub-community of Weierhof. The area of operation grew to the current BASOPS area of over 938 square miles.

On 1 October 1991, the Mannheim Military Community Activity was re-designated as the 293rd Base Support Battalion, under the 26th Area Support Group based in Heidelberg. Until then, the USAREUR Provost Marshal had been the Community Commander commanding nearly 1,400 soldiers and civilians. The change in command on 7 August 1994 marked a new era (within) for the first Headquarters; Department of the Army Battalion Command selected Lieutenant Colonel to assume command. The Commander, 5th Signal Command is now the Senior Tactical Commander for the Community and performs duties similar to a Lord Mayor – monitoring of and advising on quality of life issues and promoting German – American relations. The mission of the 293rd Base Support Battalion is to provide support and serve as a power projection platform for tenant and transient units.

Sullivan Barracks was originally constructed between 1936 and 1938 to house an officer candidate school for the German Air Force. After WWII, it served as a POW camp until 1947, when it was converted to station U.S. military forces.

Originally constructed for the German Army in 1937, Funari Barracks was acquired by U.S. forces in 1945. War damage was repaired and the installation converted for use as a troop Kaserne with an administrative office complex and miscellaneous community-wide support facilities. In 1996, Funari became the new home of 5th Signal Command.

Following the acquisition of Funari Barracks and Sullivan Barracks in 1947, Benjamin Franklin Village was constructed in two phases between 1951 and 1956 to house dependents and provide central community support facilities.

Taylor Barracks was originally built in 1939-1940 to house German Army searchlight teams. It was acquired by U.S. forces in 1945.

Spinelli Barracks was constructed in 1938 for a German Army horse-drawn combat engineer battalion. It was acquired by U.S. forces in 1945 and enlarged for use as an ordnance depot. Later it was modernized and developed as a storage and supply center.

Coleman Barracks was originally constructed in 1938-1939 as an airfield for the German armed forces. Acquired in 1945, the U.S. Army retained its use as an airfield and built new troop billets, operational areas and a confinement facility.

Originally named “Infanteriekaserne,” Turley Barracks was built between 1899 and 1901 as a replacement for military buildings in downtown Mannheim. Also known as “Kaiser-Wilhelm Kaserne”, the installation was constructed of distinctive red sandstone blocks in New Renaissance style around a central parade ground. The original Kaserne contained barracks, officers’ mess, dependent housing, a warehouse and utility buildings. The installation was used by the German Army in WW I, deactivated after the war and then reopened in 1936 to train German Army troops for WW II. It was acquired by U.S. forces after WW II and renamed. In 1948, it was converted for use by transportation and labor service units. Due to stately historic buildings and importance as an example of military architecture, Turley Barracks was placed on the list of historical monuments in Baden-Württemberg in the 1980s. The exteriors of the 12 historic structures facing the B38 and the parade ground have been restored at considerable cost and are now subject to historic protection measures under German law.

Friedrichsfeld QM Service Center and Friedrichsfeld Storage Area were constructed around 1937 to house a German labor camp. They were acquired by the U.S. forces after WW II.

Lampertheim Training Area was exposed to intense wood use during the Middle Age, due to the area’s proximity to different settlements. Moreover, geese were herded and horses, sheep, swine and neat were grazed in the pastures. For the inhabitants, the forest was available for wood gathering and litter.

3.4 ADJACENT LAND USES

Mannheim is located in the Rhine-Neckar triangle, an urbanized agglomeration comprising the cities of Heidelberg, Mannheim and Ludwigshafen, with approximately 2.3 million inhabitants. The land in this area is mainly used for industrial, traffic and residential purposes. Industry in Mannheim includes companies such as ABB, John Deere, Daimler Chrysler and the Grosskraftwerk GKM (Power Plant). Although the area is characterized by industry, recreational areas and parks are found within this agglomeration.

The three neighboring installations Funari, Benjamin Franklin Village and Sullivan Barracks adjoin the Käfertal Nature Preserve (Photograph 2.4.1), a large forested area, to the north, and agricultural land to the northwest. The south/southeastern border is formed by train tracks and two main roads. The southwestern border of Funari is formed by a main road and adjoining gardens (Photograph 2.4.4).

Taylor Barracks is located within an industrial park that is bordered by a triangle of three major roads, the A 6 Autobahn to the east, the Bundesstrasse B38 to the north and the Magdeburger Strasse to the west.

Spinelli Barracks is surrounded by parks, agricultural and fallow land to the northeast and southwest, whereas residential areas border on the south and northwest (Photograph 2.4.2).

The south and east of Coleman barracks are bordered by two Autobahns. The forest, which is divided by these highways, however, extends further south, east and north. In the west, the small community of Scharhof, surrounded by agricultural land, adjoins the installation. Asparagus is one of the main crops in the area. There is also a small industrial area west of Coleman.

Friedrichsfeld QM Service Center and Friedrichsfeld Storage Area are located between Mannheim and Heidelberg, south of highway A 656. They mainly border on industrial areas, train tracks in the south and a small forested area west of Friedrichsfeld Storage Area.
A detailed description of the regional settings of the individual installations is found in Chapter 5.

4.0 PRIORITY OF PEST MANAGEMENT WORK

The following section lists the pest categories and describes locally important pests in the order of importance for each category. These include:

- Disease vectors and medically important pests
- Quarantine pests
- Stored product pests
- Ornamental plant and turf pests
- Animal pests
- Household and nuisance pests
- Undesirable vegetation

4.1 DISEASE VECTORS AND MEDICALLY IMPORTANT PESTS

Bees and wasps are found throughout the installation. The stings are painful and cause allergic reactions in some people. These insects are a minor problem on .

4.2 QUARANTINE PESTS

Occasionally, household goods may contain Gypsy Moths. The local UDSA inspector checks incoming materials for the presence of eggs, larvae, or adult moths which are usually found on outdoor furniture or swing sets. Retrograde cargo may be encountered infrequently, and will be inspected for pests on an individual basis.

4.3 STORED PRODUCT PESTS

Food items stored in the Commissary and Commissary warehouses, the Troop Issue Support Activity, the AAFES Shoppette, and food stored in food service facilities may become infested by stored products pests. Occasional complaints are received from family housing residents, but insect infestations usually originate in the home. During the latter part of 1989, stored products insects were found infesting the Commissary; cleanup and insecticide treatments eliminated this problem. Some of the pests found in stored food in the past include: saw-toothed grain beetles, red flour beetles, pea weevils, carpet beetles and other dermestids.

4.4 ORNAMENTAL PLANT AND TURF PESTS

Trees and shrubs on can be infested by various insect pests, resulting in damage or destruction of the plants. Tent caterpillars cause problems annually, but other pests in this category have not required control on the installation in recent years. Pests which damage lawns require continuing surveillance and control.

4.5 ANIMAL PESTS

Rodents occasionally invade buildings. Although mice make up approximately 18 percent of the pest management workload, approximately 88 percent of the time is spent on mouse surveillance. Gophers, found in improved lawn areas require approximately 11 percent of the pest management workload.

4.6 HOUSEHOLD AND NUISANCE PESTS

Crawling insects (ants, cockroaches, crickets, beetles, etc.) and spiders may require control in billets, family housing, food service facilities, warehouses, offices and other administrative buildings. Cockroaches make up approximately 40 percent of the pest management workload which is nearly divided evenly between surveillance and control. The remainder of the pests in this category constitute minor pest problems on the installation. Proper sanitation and housekeeping will do much to discourage these pests.

5.0 INTEGRATED PEST MANAGEMENT (IPM)

5.1 INTRODUCTION

IPM is the fusion of multiple pest control techniques, both non-chemical and chemical, to prevent or suppress pests in any given situation. Non-chemical control methods are emphasized in this IPMP; the objective is to minimize the use of chemicals and their impact upon both public health and the environment. In some cases, chemical control methods cannot be avoided; the IPMP ensures that all other options have been exhausted prior to such measures.

5.2 IPM PRINCIPLES

The four basic principles described below are the foundation of IPM and are descriptive of the philosophy used at the installation to manage pests. While any one of these methods may solve a pest problem, often several methods are used concurrently, particularly if long-term control is needed. For example, screens may be used to prevent mosquitoes from entering buildings; breeding areas may be filled in or drained to eliminate larval habitat; and pesticides may be used to kill adult mosquitoes. Screens will protect people inside, but do little to keep people from being bitten outdoors. Larval control may eliminate mosquito breeding on the installation, but may not prevent adult insects from flying onto the installation from surrounding areas. Chemicals may kill most of the flying mosquitoes, but may miss others.

Although chemical control is an integral part of IPM, non-chemical control is stressed. Chemical control is almost always a temporary solution and, in the long run, more expensive. Non-chemical control, which may initially be more expensive than chemicals, will usually be more cost-effective over time. In addition, non-chemical controls have the advantage of being non-toxic, thereby reducing the potential risk to human health and the environment.

The following is an explanation and analysis of each of the four components of IPM:

- **Physical Control**: Also known as mechanical control, this practice involves the use of barriers or screens to remove or block pest entry, and traps to eliminate pests. These practices also incorporate gardening methods such as mulches, pruning, mowing, and hoeing or hand pulling to control weeds.
- **Cultural Control**: This practice involves habitat modification, sanitation, and implementation of common-sense measures to eliminate the elements pests need to survive. These practices seek to reduce pest problems by removing available food and water, and removing/destroying pest hiding or breeding sites. Selecting resistant varieties of plants and keeping plants healthy can also aid in reducing the possibility of pest infestations and plant diseases.
- **Biological Control**: This strategy involves the use of native or introduced beneficial organisms that are a natural enemy of the pest. These beneficial organisms can be insects (lady beetles, mites, and lacewings), microorganisms (soil fungi, bacteria, and viruses), and nematodes.
- **Chemical Control**: This practice utilizes synthetic or naturally derived chemicals. Chemicals should only be used when it is necessary, and after the assessment indicates chemical use is required. Also, pest managers should select the chemical with the lowest toxicity to humans, non-target organisms, and the environment.

5.3 INTEGRATED PEST MANAGEMENT (IPM) OUTLINES

Table 5.3.1 lists all pests encountered at the installation. IPM outlines for each of these pests are contained in Appendix C (IPM Outlines for General Installation Pests

Table 5.3.1

List of Pests Encountered at the 293rd BSB DPW, O& M Division

1.	Roaches	11.	Earwigs
2.	Ants	12.	Other Crawling Insects
3.	Silverfish	13.	Bees
4.	Moth	14.	Ticks
5.	Flies	15.	Lice
6.	Foodpests	16.	Rats
7.	Wasps	17.	Mice
8.	Spiders	18.	Moles
9.	Fleas	19.	Birds
10.	Crickets	20.	Cats

5.4 ANNUAL WORKLOAD FOR SURVEILLANCE, PREVENTION, AND CONTROL

The number of man-hours expended for surveillance, prevention, and control of pests at the installation is tabulated in Appendix D.

6.0 HEALTH AND SAFETY

6.1 MEDICAL MONITORING PROGRAM

All personnel who apply pesticides on the installation (excluding self-help pest management) are included in a medical surveillance program. This program consists of the following elements:

a. An initial, pre-employment physical examination is conducted to establish that the individual is physically capable of wearing a respirator (if required) and to establish a baseline red blood cell (RBC) cholinesterase level. A list of personnel who are monitored, as stated above, can be found in table 6.1.1, this plan.

b. Personnel who handle or otherwise come into contact with wild animals on the installation receive rabies prophylaxis.

Table 6.1.1

Installation Personnel Enrolled in the Medical Monitoring Program

Name	Date of Baseline Physical	Date of Last Physical
Fluhrer, Harald		18 May 2004
Schaefer, Gerd		
Helfrich, Reinhard		20 May 2003
Pfliegensdoerfer, Thomas		20 May 2003
Blanke, Michael		18 May 2004
Kraemer, Joerg		

Table 6.1.2

Installation Personnel Who Regularly Work with Organophosphate and/or Carbamate Pesticides

Name	Date of Baseline Physical	Dates of Quarterly Physicals

6.2 HAZRAD COMMUNICATION

Table 6.2.1 lists all installation pest management personnel who have received hazard communication training.

Table 6.2.1

Installation Pest Management Personnel Who Have Received Hazard Communication Training

Name	Date of Initial Training	Date of Most Recent Refresher Training
Fluhrer, Harald	15.09.2000	
Schaefer, Gerd	15.09.2000	

MSDS. Material Safety Data Sheets for all pesticides and other toxic substances used in the pest management program can be found in the Pest Control Shop (Building 359). Additionally, MSDS are kept in each facility where pesticides are stored or handled

6.3 PERSONAL PROTECTIVE EQUIPMENT

Approved masks, respirators, chemical resistant gloves and boots, and protective clothing (as specified by applicable laws, regulations and/or the pesticide label) are provided to pesticide applicators by the Government or the contractor, as applicable. These items are used as required during the mixing and application of pesticides. Pesticide-contaminated protective clothing is not laundered at home. The clothing is laundered in the Pest Control Shop (Building 359). Severely contaminated clothing is not laundered, but is considered a pesticide-related waste and disposed of by the Defense Reutilization and Marketing Office (DRMO) in accordance with current Environmental Office requirements. The proper use and maintenance of personal protective equipment can be found in Appendices G (Pest Management Operations) and H (Maintenance and Care of Respirators).

Table 6.3.1 lists PPE that is routinely provided to installation pest management personnel.

Table 6.3.1 Personal Protective Equipment Available to Installation Personnel

Respirator	Safety clothes
Gloves	Safety Shoes

Respirators require special attention. Guidance on the proper use and maintenance of PPE, including respirators, can be found in Appendices F and G.

6.4 FIREFIGHTING PLANS AND EQUIPMENT

Building 359 and the surrounding open-sided enclosure contain the majority of pesticides stored by Public Works. Maps and other information relating to fire control at Building 359 can be found in Appendix G.

6.5 PEST CONTROL VEHICLES

The pest control vehicles currently on hand are only used for pest control purposes. Care is taken to secure pesticides to prevent damage to the containers and spillage of the chemicals. At no time are pesticides left unsecured in the vehicles when unattended. Pesticides or contaminated equipment are not placed in the cabs of the vehicles.

6.6 DECONTAMINATION FACILITIES

The Pest Control Shop in Building 359 has the following decontamination equipment:

- *Emergency Shower*
- *Eye Wash Station*
- *Spill Kit*

All decontamination equipment is in located in the mixing room of the facility.

7.0 ENVIRONMENTAL CONSIDERATIONS

7.1 PROTECTION OF THE PUBLIC

Precautions are taken during pesticide application to protect the public, on and off the installation..

The following precautions, outlined in Table 7.1.1, will be taken during pesticide application to protect the public on and off the installation:

Table 7.1.1 Precautions Taken to Protect the Public during Pesticide Application

Meteorological Conditions: Pesticides are not applied outdoors when the wind speed exceeds five miles per hour.
Pesticide Drift: Whenever pesticides are applied outdoors, care is taken to make sure that any spray drift is kept away from individuals, including the applicator.
Drinking Water Contamination: No pesticide applying will be performed in this areas.
Public Notification: At no time are personnel permitted in a treatment area during pesticide application unless they have met the medical monitoring standards and are appropriately protected.
Indoor Application: Pesticide application indoors is accomplished by individuals wearing the proper personal protective clothing and equipment
Other Actions: none

7.2 SENSITIVE AREAS

Sensitive areas listed on pesticide labels are considered before pest control operations are conducted. Application will be consistent with all pesticide label instructions.

Table 7.2.1 lists sensitive areas identified at the installation where special precautions are taken when applying pesticides.

Table 7.2.1

Special Areas with Regard to Pesticide Application

Wetlands: No pesticides are applied directly to wetlands unless use in such sites is specifically approved on the label and the proposed application is approved. Pesticide label instructions and guidance provided are followed.
Water areas: No pesticides are applied directly to water areas (lakes, rivers, etc.) unless use in such sites is specifically approved on the label and the proposed application is approved. Pesticide label instructions and guidance provided are followed.
Family quarters: Special care is given when pesticides are applied in family quarters. Pesticide label instructions and guidance provided are followed.

7.3 PESTICIDE SPILLS AND REMEDIATION

All locations that store pesticides should maintain a copy of the Installation Spill Plan and personnel should be familiar with the contents.

A pesticide spill cleanup kit is maintained in the pesticide storage area of Building 359. Pesticide spill cleanup procedures, notification procedures, and a list of components of the spill kit are provided in Appendix H of this plan.

Table 7.3.1 Installation Emergency Telephone Numbers

EMERGENCY TELEPHONE NUMBERS		
Organization	**Individual**	**Telephone Number**
Fire Department:	Volker Ott	117
Spill Response Team:		
Police:		114
Director of Public Works:	MAJ Smith	380 – 1560 381 - 8148
Pest Management Coordinator:	Harald Fluhrer	381 – 7456/7088
Environmental Office:	Mary Kay Foley	381 - 8675

7.4 PROHIBITED ACTIVITIES

Table 7.4.1 describes prohibited pesticide management activities at the installation.

Table 7.4.1

Prohibited Pest Management Activities

1.	At no time a pesticide will be used in any manner which is inconsistent with its label.
2.	No pesticide will be used whose registration has been suspended or canceled

8.0 PEST MANAGEMENT SERVICES PROVIDED TO OTHER ACTIVITIES

The following activities are serviced from us:

- *Schools*
  - Elementary schools

  - Middle School

  - High School

  - Kindergarten
- *Dispensary*
- *Commissary*
- *PX*
- *Shoppette*
- *Mess Halls*
- *Clubs*
- *Housing – Family Quarters*
- *EIA Gruenstadt*
- *Theatre*
- *Gyms*
- *Bowing Centers*
- *German Canteens*
- *Troop Billet*
- *Miscellaneos Buildings*

9.0 RESOURCES

9.1 STAFFING

Table 9.1.1 lists all installation personnel involved with pesticide management activities at the installation and describes their job duties.

Table 9.1.1

Installation Personnel with Pest Management Responsibilities

	Name	Organization	Job Duties
1.	Fluhrer, Harald	O & M Division	Supervisor Pest Control
2.	Schaefer, Gerd	O & M Division	Foreman Pest Control
3.	Helfrich, Reinhard	O & M Division	Pest Controller
4.	Pfliegensdoerfer, T	O & M Division	Pest Controller
5.	Blanke, Michael	O & M Division	Pest Controller
6.	Kraemer, Joerg	O & M Division	Pest Controller
7.			
8.			
9.			
10.			

Additional information regarding personnel training and certification is included in Section 10.1.

9.2 PESTICIDE INVENTORY

Appendix I includes an inventory of all pesticides stored on the installation,

9.3 PEST CONTROL EQUIPMENT

Appendix J includes an inventory of all pesticide application equipment used at the installation. Only authorized, trained personnel shall operate pest control equipment.

Vehicles involved in pest management activities are to be used solely for such purposes. These vehicles must have lockable storage areas, separate cabs, and pesticide spill kits.

All materials, buildings and equipment are furnished by the Government. Only pesticides and pesticide application equipment required by the program are maintained on the installation. Pesticides are ordered as required to maintain at least a three month supply but not more than a one year supply in stock. Pesticides which are required for use during a specific time of year are ordered in a timely manner to ensure effective application. The inventory of pesticides provided as Appendix I lists the pesticides on hand at . An inventory of pesticide application equipment used at 293rd BSB DPW is provided as Appendix J. These inventories are updated as changes occur. As a minimum, an updated pesticide inventory is included in the plan's Annual Update.

9.4 PESTICIDE MIXING AND STORAGE AREAS

a. All pesticides used by the Pest Control Shop are stored in the Pest Control Shop (Building 359) This facility is surrounded by a climb-proof chain link fence. A floor plan for this facility is found in Appendix K .

b. Pesticides are mixed within the Pest Control Shop (Building 359) A sink, used to fill small hand-held sprayers, is located within a curbed area on the cement pad. A hose is used to fill large spray tanks.

c. A pesticide spill kit is maintained in the pesticide storage and mixing area.

Table 9.4.1 lists all pesticide mixing and storage facilities at the installation. A detailed description of each facility is included in Appendix K.

Table 9.4.1

Installation Pesticide Mixing and Storage Facilities

	Location	Bldg No.	Functional Use	Point of Contact
1.	293rd BSB DPW	359	Pest Control Shop	Fluhrer, Harald
2.				
3.				
4.				
5.				

9.5 PESTICIDE CONTAINERS

Pesticide containers must be stored in a manner that is consistent with labeling and promotes safety and efficiency. When storing pesticides, installation personnel will ensure that each of the following conditions is met.

- The storage area is a dry, well-ventilated area separated from other operations.
- Containers are kept within a temperature range of +5 to +35 degrees Celsius at all times.
- Rigid containers are stored upright.
- Incompatible materials are stored separately.
- All pesticide containers are kept closed when not in use.
- Containers are stored upright above the facility floor level and arranged by type.
- Container labels are plainly visible.
- Container lids, bungs, and seams are in good condition.
- Pesticide containers that are leaking or have deteriorated significantly are to be immediately recontainerized or overpacked in approved containers.

10.0 PROGRAM ADMINISTRATION

Reports and documentation will be forwarded to

- *Elyn,, Martin IMA Europe Region Entomologist*

10.1 CERTIFICATION AND TRAINING

Copies of applicator certifications are included in Appendix N.

Table 10.1.1

Installation Certified Pesticide Applicators

Name	DoD Certification or Host Nation Certification Number	Certification Categories and Job Duties
1. Fluhrer, H.	OAE-100-88-0403	NON-FIFRA III,VI,VII,VIII
2. Schaefer, G.	OAE-102-88-0403	NON-FIFRA VII,VIII
3. Helfrich, R.	OAE-060-88-0403	NON-FIFRA III,VI,VII,VIII
4. Pfliegensdoerfer T.	OAE-101-88-0403	NON-FIFRA III,VI,VII,VIII
5. Blanke, M.	OAE-193-02	NON-FIFRA III,VI,VII,VIII
6. Kraemer, Joerg	OAE-203-04	NON-FIFRA III,VI,VII,VIII

a. Pest Control Shop employees who apply or oversee the application of pesticides are DOD-certified. Training and certification is conducted by the CHPPM Europe pest management technician. Certified personnel are re-certified every three years. Installation pest management personnel are certified in the appropriate EPA categories in order to perform pest management operations directly or to supervise other employees conducting pest control within these categories. Training certificates are found in Appendix N.

b. Personnel who are certified in pesticide application attend local pest management classes, workshops, seminars, etc., in order to keep abreast of pest problems and pest management techniques which are unique to the area surrounding the installation.. By attending local seminars, pest management personnel learn to solve problems on the installation by talking to people in the same geographic area which have solved similar problems in the past. The time and labor expended in this type of training is easily recouped through improved efficiency in pest control operations on the installation. Local pest management training consists of at least eight hours per year; this is in addition to any off-site re-certification training, such as the DOD course. Other personnel who deal directly with pest control operations, but who may not need to be certified, are also encouraged to attend local seminars to better understand the pest management needs of the installation.

In addition to the formalized training required to obtain DoD or Host Nation certification, “On-the-Job Training”, continuing education courses, and other related seminars are important components of a well-rounded training program. Table 10.1.2 provides an example of the type of information that is documented for other training courses/seminars that have been attended by personnel on the installation with pest management responsibilities. Additional documentation related to these training activities is included in Appendix N.

Please see Appendix N

Table 10.1.2

Other Pest Management Courses/Seminars Attended by Installation Personnel

Name and Location of Course:	Gepruefter Schaedlingsbekaempfer , Mainz
Date(s) of Course:	Fluhrer 2001, Schaefer 2002 , Kraemer 2002
Sponsoring Organization:	DPW
Individual Attending Course:	Fluhrer, Harald Schaefer, Gerd
Course Summary	

10.2 IPM PLAN MAINTENANCE

a. This pest management plan is maintained by the Installation Pest Management Coordinator. Pen and ink changes are made to the plan throughout the fiscal year. The plan is reviewed and updated annually to reflect all changes made in the pest management program during the fiscal year.

b. Annual updates of this plan will be sent to the Pest Management Consultant not later than 31 July.

10.3 COORDINATION

DOD, Other Federal, State and Local.

1. The Army Pest Management Program is responsible for protecting personnel and material from illness and damage by pests, wherever in the world they may be. The program includes both medical and operational responsibilities. While these responsibilities do overlap, Heath Services Command (HSC) focuses on preventing and minimizing medical consequences of pests and pest management operations while the Assistant Chief of Staff for Installation Management and the Army Environmental Center concentrate on safe, effective implementation of day to day pest management operations and environmental considerations of pest management operations.

2. The USAREUR Entomologist reviews the pest management plan, and approves any pesticide application that: conducted with restricted use pesticides; uses any pesticide that may significantly contaminate surface or ground water; includes 259 or more hectares (640 acres) in one pesticide application; may adversely affect endangered or other protected species or habitats; or involves aerial application of pesticides.

3. A list of points of contact, with telephone numbers, is found in Appendix A.

11.0 PEST MANAGEMENT REFERENCES

Appendix O lists relevant documents pertaining to pest management on the installation.

1. Federal and State Laws.

a. The Federal Insecticide, Fungicide and Rodenticide Act (thru PL 100-460, 100-464 to 100-526, and 100-532).

b. Title 29, Code of Federal Regulations, 1993 revision, Section 1910, Occupational Safety and Health Standards.

c. Title 40, Code of Federal Regulations, 1993 revision, Section 165.10, Recommended Procedures and Criteria for Storage of Pesticides and Pesticide Containers.

2. Regulations.

a. DoD Instruction 4150.7, DoD Pest Management Program, 22 April 1996.

b. AR 11-34, The Army Respiratory Protection Program, 15 February 1990.

c. AR 40-5, Preventive Medicine, 30 August 1986.

d. AR 200-1, Environmental Protection and Enhancement, 23 April 1990.

e. AR 200-2, Environmental Effects of Army Actions, 23 December 1988.

f. AR 200-3, Natural Resources Land, Forest, and Wildlife Management.

g. AR 420-76, Pest Management, 3 June 1986.

h. AR 608-10, Child Development Services, 12 February 1990.

i. HSC Reg 40-30, HSC Operating Program - Preventive Medicine Guidelines for Implementation of a Preventive Medicine Program for MEDCEN/MEDDAC, 16 March 1989.

j. HSC Pam 40-3, Environmental Health Program, October 1985.

3. Technical Manuals.

a. TM 5-629, Weed Control and Plant Growth Regulation, 24 May 1989.

b. TM 5-632, Military Entomology Operational Handbook, December 1971.

4. CHPPM Technical Guides.

a. No. 114, Guide for the Medical Surveillance of Pest Controllers, March 1976.

b. No. 138, Guide to Commensal Rodent Control, December 1991.

5. Armed Forces Pest Management Board Technical Information Memorandums.

a. No. 14, Protective Equipment of Pest Control Personnel, March 1992.

b. No. 15, Pesticide Spill Prevention Management, June 1992.

c. No. 16, Pesticide Fires: Prevention, Control, and Cleanup, June 1981.

d. No. 20, Pest Management Operations in Medical Treatment Facilities, October 1989.

e. No. 21, Pesticide Disposal Guide for Pest Control Shops, October 1986.

f. No. 29, Integrated Pest Management in and Around Buildings, 1994.

6. Other References, Manuals, Books and Guides.

a. MIL-STD-903C, Sanitary Standards for Commissaries, 20 November 1986.

b. MIL-STD-904A, Guidelines for Detection, Evaluation and Prevention of Pest Infestation of Subsistence, 13 January 1984.

c. MIL-STD-909, Sanitation Standards for Food Storage Facilities, 31 August 1989.

d. MIL-HDBK-1028/8A, 1 November 1991, Design of Pest Management Facilities.

e. TB Med 561, Occupational and Environmental Health, Pest Surveillance, June 1992.

f. Mallis Handbook of Pest Control, 7th Edition, PCT Books, 4012 Bridge Ave, Cleveland, OH 44113, 1100 pp., $89.00

g. Soil Survey of Yucca County, Arizona, USDA Soil Conservation Service, 1993.

7. Periodicals.

a. Pest Control (Magazine Published Monthly, $22/YEAR), P.O. Box 6215, Duluth, MN 55806-9915.

b. Pest Control Technology (Magazine Published Monthly, $30/Year), PCT, 4012 Bridge Ave, Cleveland, OH 44113.

c. Pest Management Bulletin, Periodic Publication of U.S. Army Environmental Hygiene Agency, Entomological Sciences Division, Aberdeen Proving Ground, MD 21010-5422. (Phone DSN 584-3613)